



June 26, 2024

Mr. Kevin Day, Deputy Director
California Building Standards Commission

TO: cbsc@dgs.ca.gov

Re: The 2025 California Electrical Code, California Code of Regulations, Title 24, Part 3
(DSA-SS 01/23)

Dear Mr. Day:

The Association of Home Appliance Manufacturers (AHAM) respectfully submits the following comments to the California Building Standards Commission (CBSC) on the proposed California Electrical Code.

AHAM supports CBSC in its efforts to maintain a state electrical code. However, AHAM has concerns with the proposal to adopt the 2023 National Electrical Code (NEC), in particular Articles 210.8(A) and 210.8(D). Both articles deal with shock protection provided by Ground-Fault Circuit-Interrupters (GFCIs). Compared to the 2020 NEC, the 2023 edition requires GFCIs in more locations within the home and requires GFCI protection for more appliances. Due to unacceptable levels of nuisance tripping, home appliance manufacturers request the following amendments to the California electrical code: strike “through 250-volt” in 210.8(A), replace “Kitchens” with “Kitchens – where the receptacles are installed to serve the countertop surfaces” in 210.8(A), and strikeout items (8) through (12) in 210.8(D).

I. GFCIs need to be modernized.

The GFCI was first introduced into the NEC when electrical loads in the home were operating on 60 Hertz (Hz) electricity. Because of this uniform 60Hz operation, GFCIs based tripping requirements upon 60Hz measurements. The same GFCI trip and no trip requirements remain in place today.

Present requirements for GFCI tripping are in contrast with electronic loads in today’s home. Virtually every modern mains-connected appliance has parts that operate at frequencies other than 60Hz. This change is due to the implementation of components like LED drivers, switched-mode power supplies, and variable frequency drives. Modern components have been implemented to meet consumer demands but also to comply with mandatory energy efficiency regulations set by the U.S. Department of Energy and state regulators.

As electrical loads in the home have been modernized, GFCIs need to be modernized as well. Presently, there are no existing requirements for how a GFCI shall react to frequencies higher than 60Hz. This lack of standardization allows any GFCI manufacturer to choose any trip threshold for higher frequencies. Some GFCI manufacturers have set trip thresholds such that the device is oversensitive and trips on safe levels of high frequency emissions for which there are no known health risks. This is commonly known as nuisance tripping—cases where critical appliances are operating at safe conditions, but the GFCI trips anyways, improperly disabling the appliance.

Nuisance tripping on modern, safe, efficient home appliances has been proven by a [3rd party study](#). UL Solutions connected three appliances to ten different GFCIs. Nuisance tripping occurred on each of the three appliances. When UL analyzed and tested these appliances, no hazardous electrical conditions were observed. Until GFCIs are modernized, nuisance tripping will continue to disable appliances in good working order, removing critical utility from the home such as the ability to maintain a safe indoor temperature and the ability to store/prepare food.

II. Other regulatory bodies have acted on GFCI nuisance tripping

GFCI nuisance tripping is happening across the county. These issues come up so often that other states have already acted to prevent nuisance tripping by deviating from the National Electrical Code to not require GFCIs in some instances, better ensuring that critical appliances can be used when needed by the consumer. Examples include [Georgia](#), [Iowa](#), [Massachusetts](#), [North Carolina](#), [Oregon](#), and [South Carolina](#).

The Consumer Product Safety Commission (CPSC) has also written a [staff opinion letter](#) noting the connection between efficiency and GFCI nuisance tripping. The staff letter asks that UL standards be updated to avoid nuisance tripping and, “In the interest of continuing and further improving electrical shock safety and keeping consumers safe, CPSC staff believes it is imperative that the installation codes ... and the many electrical end-product standards, work together.”

III. Safety standards are being updated

Home appliance manufacturers have a role to play in reducing nuisance tripping. The home appliance industry is continuing to work in updating products as well as standards to prevent nuisance tripping. AHAM encourages CBSC to look at the recently published updates in UL 858, Safety Standard for Household Electric Ranges, and UL 101, Safety Standard for Leakage Current of Utilization Equipment.

We have not yet seen updates to the GFCI standard, UL 943. AHAM believes this GFCI standards work needs to be completed, published, and made effective before GFCI installation can be expanded in electrical codes, as is seen in the 2023 NEC.

AHAM asks that CBSC take a holistic approach to safety in the home. Appliances like refrigerators, room air conditioners, and cooktops are critical for the safety and well-being of the consumer. Just because GFCIs have been able to protect such appliances in the past, does not mean that GFCIs can adequately protect appliances today.

Again, AHAM asks that California amend the 2023 NEC as follows: strike “through 250-volt” in 210.8(A), replace “Kitchens” with “Kitchens – where the receptacles are installed to serve the countertop surfaces” in 210.8(A), and strikeout items (8) through (12) in 210.8(D). If not adopting these amendments, at the very least, CBSC should allow removal of the GFCI when nuisance tripping occurs.

AHAM appreciates the opportunity to submit these comments on CBSC’s electrical code rulemaking and would be glad to discuss these matters in more detail should you so request.

Respectfully Submitted,

A handwritten signature in blue ink, appearing to read "Randall Cooper".

Randall Cooper

Vice President of Technical Operations and Standards

About AHAM: AHAM represents more than 150 member companies that manufacture 90% of the major, portable and floor care appliances shipped for sale in the U.S. Home appliances are the heart of the home, and AHAM members provide safe, innovative, sustainable and efficient products that enhance consumers’ lives. The home appliance industry is a significant segment of the economy, measured by the contributions of home appliance manufacturers, wholesalers, and retailers to the U.S. economy. In all, the industry drives nearly \$200 billion in economic output throughout the U.S. and manufactures products with a factory shipment value of more than \$50 billion.